

ALL SEASONS WATER ASSOCIATION (PWSNO 1280269) SOURCE WATER ASSESSMENT REPORT

March 3, 2003



State of Idaho Department of Environmental Quality

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SOURCE WATER ASSESSMENT FOR ALL SEASONS WATER ASSOCIATION

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your drinking water source is based on well construction characteristics; site specific sensitivity factors associated with the aquifer the water is drawn from; a land use inventory inside the well recharge zone; and water quality history. For non-community transient water systems like All Seasons Water Association, recharge zones were generally delineated as a 1000-foot fixed radius around the wells.

This report, *Source Water Assessment for All Seasons Water Association* describes factors used to assess susceptibility to contamination. The analysis relies on information from the well log; an inventory of land use inside the delineation boundaries, well site characteristics, potential contaminant sites identified through a Geographic Information System database search; and information from the public water system file. The ground water susceptibility analysis worksheet for All Seasons Water Association is attached.

Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should not be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Well Construction.

The All Seasons Water Association water system serves two year-round and 18 seasonal homes in a development about 0.6 miles north of Black Rock Bay on the western shore of Lake Coeur d'Alene. A 400-foot deep well that was drilled in 1972 provides drinking water for the system. The six-inch steel casing extends from ground level to a depth of 325 feet where it terminates in a water-bearing stratum of decomposed granite lying 310 to 365 feet below ground. The bottom 75 feet of the well bore is free standing. The 20-foot deep puddling clay surface seal extends into a clay bed. At the time of drilling, the static water level was 125 feet below land surface and the well produced about 11 gallons per minute. In the summer of 2002, water production dropped to an estimated 2 gallons per minute. Except for a minor variation in the well casing thickness the well meets current Idaho Department of Water Resources construction standards.

The system was not in compliance with the *Idaho Rules for Public Drinking Water Systems* when it was inspected in June 1997. A note on the sanitary survey report indicates that necessary repairs were completed by October 1997.

Well Site Characteristics.

Hydrologic sensitivity scores are derived from information on the well log and from the soil drainage classification inside the recharge zone delineated for your well. Soils covering recharge zone delineated for All Seasons Water Association are moderately well drained. The well log shows 18 feet of boulders and clay, then a 17-foot thick clay bed covering the fractured basalt that lies over the water table. First water was encountered in a broken basalt seam 180 to 185 feet below the surface.

Potential Contaminant Inventory.

The 1000-foot radius recharge zone delineated for the All Seasons Water Association well is partially forested and developed for both seasonal and year round homes. A point was added to both the inorganic chemical and microbial scores for the well because of the number of homes and septic systems inside the delineation boundaries. Because the well draws from ground water and is above the flood plain for the lake, surface water was discounted as a potential source of microbial contamination.

Water Quality History.

All Seasons Water Association is required to test quarterly for total coliform bacteria. In the period from January 1996, when All Seasons came under regulation, through July 2001, total coliform bacteria were present in three quarterly samples. Follow up tests were negative. The system tests annually for nitrates. In 1996 and 1997 concentrations of nitrate ranged between 0.028 and 1.43 mg/l. The nitrate concentration was below detection levels in 1999 through 2001. The Maximum Contaminant Level for Nitrate is 10 mg/l.

Susceptibility to Contamination.

An analysis of the All Seasons Water Association well, incorporating information from the public water system file, and the potential contaminant inventory, ranked the well at moderately susceptible to contamination relative to all classes of regulated contaminants. Risk factors related to local geology added the most points to the final susceptibility scores. The complete ground water susceptibility work sheet for your system is on page 6 of this report. Formulas used to compute final scores and susceptibility rankings are at the bottom of the worksheet.

Source Water Protection.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

All Seasons Water Association already has some significant drinking water protection measures in place. The well is located in an insulated and locked pump house with a concrete floor. Necessary improvements were undertaken promptly following the 1997 sanitary survey. The system has started researching ways around the lack of capacity of the current well. Drilling a new well, redeveloping the current well, or utilizing surface water are possible alternatives. Even if a new source is developed, the system should promote water conservation in its service area since increasing development along the lakeshore increases the demand on the available ground water supply.

The system should investigate ground water stewardship programs like Home*A*Syst on the web or by phone (608) 262-0024. These programs are designed to help well owners assess everyday activities for their potential impact on drinking water quality. Topics include septic system maintenance, petroleum product storage, handling and storing lawn and household chemicals and similar activities. Every system should develop an emergency response plan. There is a simple fill-in-the-blanks form available on the DEQ website to guide systems through the emergency planning process.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

Assistance.

Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request help with drinking water protection planning.

Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

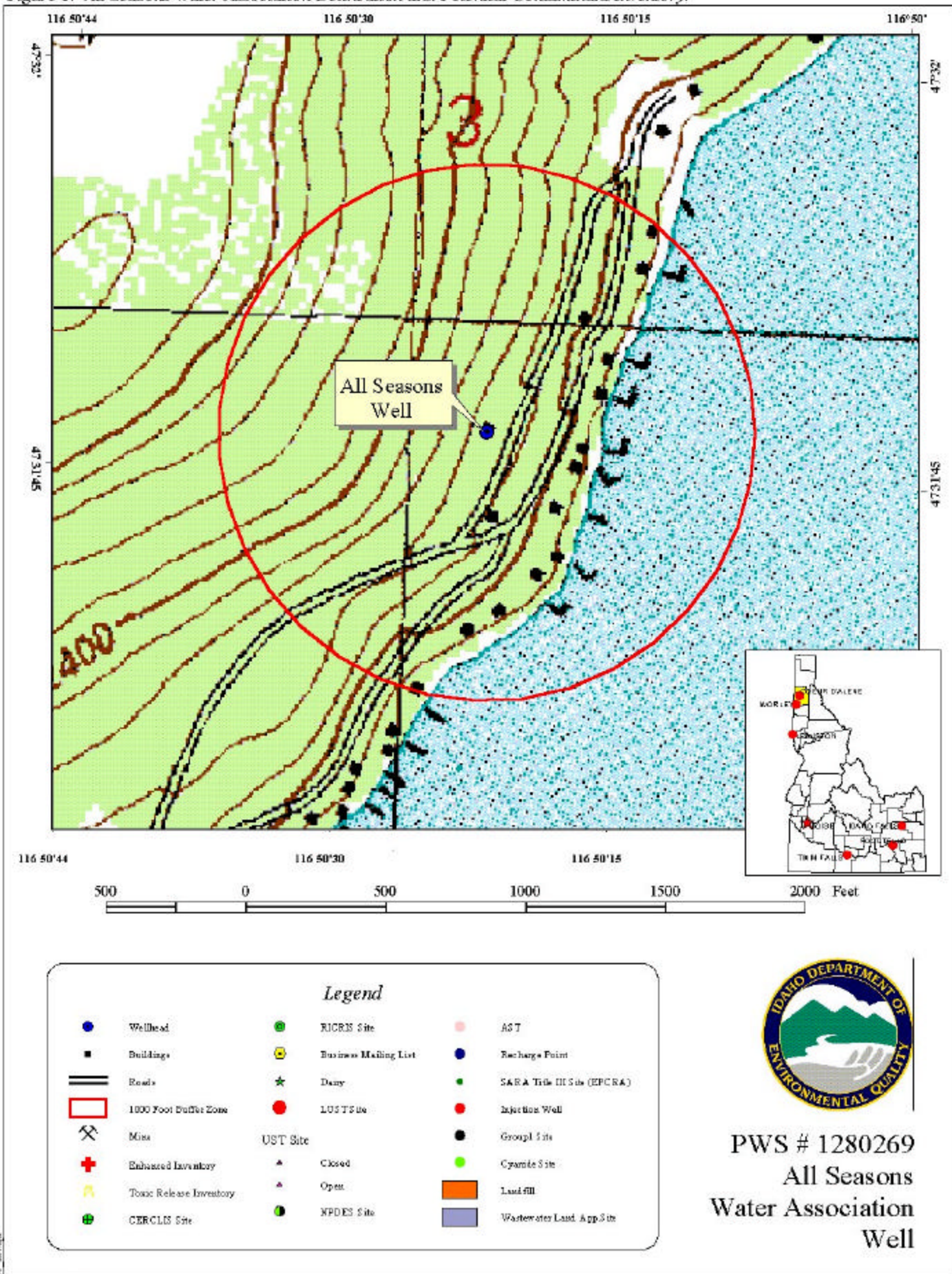
DEQ Website: www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper of the Idaho Rural Water Association (208) 343-7001 for assistance with drinking water protection strategies.

Idaho Rural Water Association Website: www.idahoruralwater.com

Home * A * Syst Website: www.uwex.edu/homeasyst

Figure 1. All Seasons Water Association Delineation and Potential Contaminant Inventory.



Ground Water Susceptibility

Public Water System Name :

ALL SEASONS WATER ASSN

Well # :

WELL #1

Public Water System Number :

1280269

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1. System Construction		SCORE			
Drill Date	7/16/72				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES 1997				
Well meets IDWR construction standards	YES	0			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	YES	0			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		1			
2. Hydrologic Sensitivity					
Soils are moderately drained	YES	1			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		5			
3. Potential Contaminant / Land Use		IOC	VOC	SOC	Microbial
		Score	Score	Score	Score
Land Use	Suburban Residential	1	1	1	1
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Sanitary Setback	NO	NO	NO	NO	NO
Potential Contaminant Source/Land Use Score		1	1	1	1
Potential Contaminant / Land Use 1000-Foot Radius					
Contaminant sources present (Number of Sources)	YES. Multiple Septic Systems	1	0	0	1
(Score = # Sources X 2) 8 Points Maximum		2	0	0	2
Sources of Class II or III leacheable contaminants or Microbials	YES	1	0	0	
4 Points Maximum		1	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Agricultural land use 1000-Foot Radius	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - 1000-Foot Radius		3	0	0	2
Cumulative Potential Contaminant / Land Use Score		4	1	1	3
4. Final Susceptibility Source Score		7	6	6	7
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

0 - 5 Low Susceptibility
 6 - 12 Moderate Susceptibility
 > 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ? Superfund? is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.